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Irrigation in Southwest Saskatchewan



DEPARTMENT
OF REGIONAL
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PFRA AND ITS PURPOSE

The Prairie Farm Rehabilitation Act is one of the most successful pieces of agricultural legislation ever passed by a Canadian government.

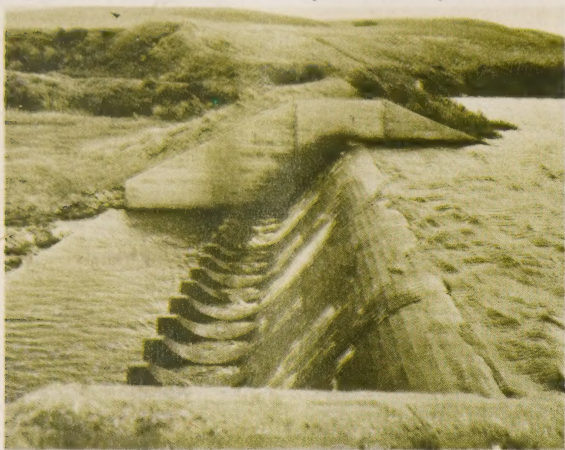
Born of necessity in 1935, and nurtured on faith in agriculture on the prairies, PFRA is known and accepted by farmers and by the prairie community at large. Its original function was to combat drought and soil drifting in the intensely agricultural areas of Manitoba, Saskatchewan and Alberta. It is still involved in this activity, but its scope has since broadened both in purpose and in the area being served.

In 1937, by amendment, PFRA moved into the realm of land use adjustment, under which an extensive community pasture program has been developed. In 1961 its boundaries were adjusted northward to include all areas of the three provinces where agriculture is practiced.

Water development has always been basic to the program. From minor structures costing a few hundred dollars, to multi-million dollar developments, all have received both financial and technical assistance.

In southwest Saskatchewan, PFRA's activities have been extensive, with perhaps the principal feature being irrigation development. This is the story of that particular activity.

Gap Creek Diversion Weir on Maple Creek Project.



WATER STORAGE IS THE KEY

The 1930's brought disastrous conditions to agricultural lands in southwest Saskatchewan. A lack of precipitation, and serious wind erosion, caused crop failures; uncertain water supplies, coupled with reduced winter feed production, caused a large decline in livestock numbers.

Since 1938, PFRA has constructed 27 large water storage reservoirs in the area; these are still owned and operated by the agency. In addition to the large storage reservoirs, the financial and technical assistance offered under the PFRA program prompted many ranchers and farmers to construct small water storage projects on their farms and ranches, thus ensuring water for livestock.

The large storage basins now serve 40,000 acres of irrigated hay-land controlled by the Federal and Provincial Governments. These storages also provide a considerable degree of flood control while augmenting recreation facilities and offering habitats for wildlife. In addition, water from the reservoirs is used for stock watering, for other agricultural purposes, and for domestic consumption.

The major structures enable controlled releases of water to the United States under agreements for division of water in international streams.

The total water storage capacity of all 27 dams is 313,230 acre-feet. The largest is Cypress Lake Reservoir, with a capacity of 100,000 acre-feet. This reservoir provides for irrigation of 3,000 acres of PFRA land and 2,500 acres of provincial government projects, as well as supplying supplementary water for the Eastend Project. It is also used to store water which must be released at proper times to account for international division. Cypress Lake is being used increasingly as a recreational area.

The second largest reservoir is created by Duncairn Dam, which has a capacity of 84,000 acre-feet. This reservoir supplies water to about 6,700 acres of PFRA land and 3,500 acres of provincial and private land at Herbert and



Water flowing over drop structure from Harris Reservoir.

INCREASING YIELDS

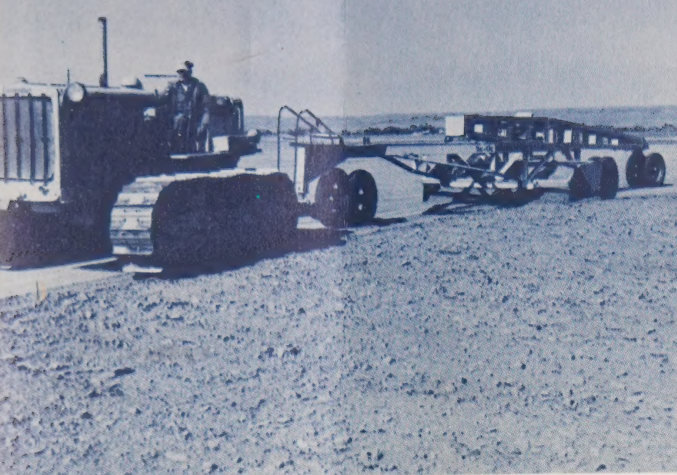
The irrigation projects are undergoing intensive renovation and reconstruction to bring them up to modern standards. Many of the structures are the original ones installed in the late 1930's. They have served their purpose well, but are being replaced with more efficient and permanent structures: a costly and time consuming operation, but vitally necessary because as the land becomes more valuable, seepage and water losses become much more significant.

In 1956, the border dyke method of land development was investigated by PFRA engineers. It was found to be desirable and has been developed to a large degree on the irrigation projects. This method, also known as the Parkinson System, involves levelling the land and creating six inch-high dykes at intervals of from 20 to 50 feet to contain the water as it passes down the field.

The first major area to be levelled was approximately 300 acres on the Uglem site at Eastend. PFRA then levelled demonstration plots on each of the projects. When the

Drainage ditch on Rush Lake Project.

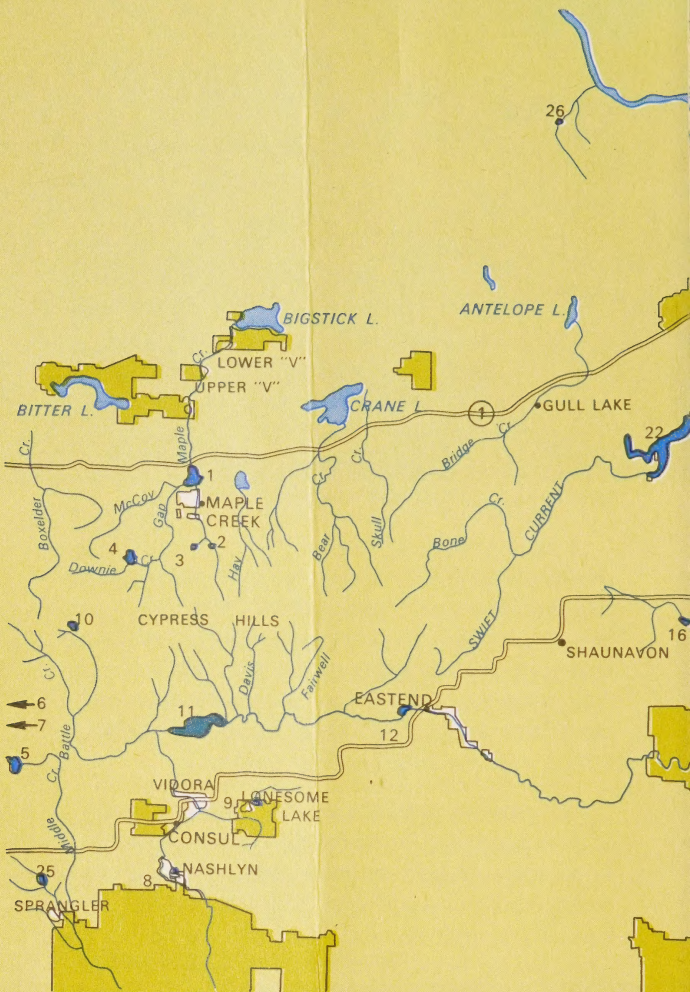




Land levelling with scraper plane on Eastend Project.

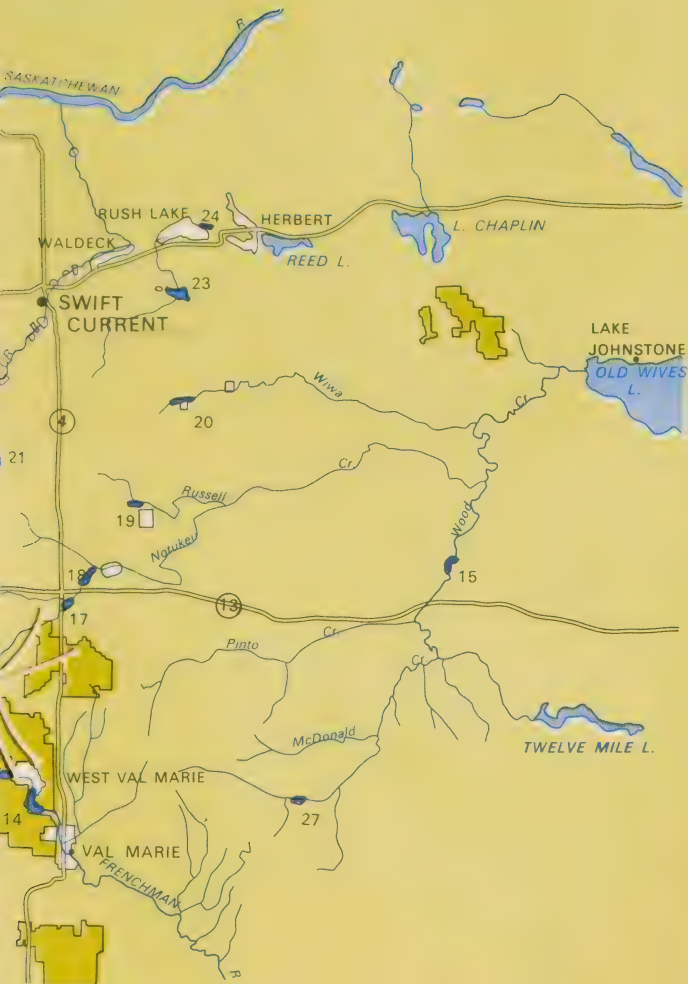
neighbouring farmers observed the increased production, good water control and lower labor costs that resulted, they began to make this type of improvement on their own irrigation lots. Since then, large sums have been invested in the border dyke system by PFRA and the farmers themselves.

Experience has shown that satisfactory forage production is possible on land which had formerly been considered unsuitable for cropping due to salt accumulation in the upper layers of the soil. Uniform water application is possible and adequate surface drainage is provided by development of land by the border dyke system. Adequate drainage has been recognized as of great importance, and drainage planning is treated with the same care as water servicing to lots when plans are being prepared. Many lots previously thought to be poor and unproductive are now producing good crops of forage following their redesign and improvement under this system. The installation of drainage works now proceeding on some projects is very costly, because drains often have to be cut through developed land or roads.



STORAGE RESERVOIRS

- | | | |
|----------------|-----------------|-----------------|
| 1 Junction | 10 Adams L. | 19 Russell Cr. |
| 2 McDougald | 11 Cypress L. | 20 Braddock |
| 3 Harris | 12 Eastend | 21 L. Pelletier |
| 4 Downie Lake | 13 W. Val Marie | 22 Duncairn |
| 5 Middle Creek | 14 Val Marie | 23 Highfield |
| 6 Simms L. | 15 Thompson | 24 Herbert |
| 7 Bedford | 16 Admiral | 25 Altawan |
| 8 Nashlyn | 17 Cadillac | 26 Cabri |
| 9 Lonesome L. | 18 Gouverneur | 27 Summercove |



SWIFT CURRENT DISTRICT

COMMUNITY PASTURES



IRRIGATION PROJECTS



STORAGE RESERVOIRS





Irrigation fields in Val Marie area.



*Cutting alfalfa on Maple Creek Project
under border dyke method of irrigation.*



Cattle in mechanical grazing operation.

POLICY AND PRODUCTION

The land allocation policy has been to provide bona fide farmers with parcels of irrigable hay-land so that an assured winter feed supply might be available to them. It was intended that these irrigation units should be used to complement economic dry land units. With stabilized hay supplies, farmers are now assured of sufficient feed to carry their herds through the winter.

The livestock population of southwest Saskatchewan has remained relatively constant over the last few years at approximately 90,000 head. It will probably remain at this figure until increased productivity can be obtained on the range land used for summer grazing. Meanwhile, the 25,000 acres under PFRA jurisdiction is producing up to 60,000 tons of hay and 35,000 bushels of oats annually. This is sufficient to provide winter feed for almost 50,000 animals.

There are 557 farmers holding irrigation lots on the six major irrigation projects operated by PFRA. All land allocations and assessments are made from the PFRA office at Swift Current.

Farmer hauling hay to cattle on Val Marie Project.



EXTENSION AND ECONOMICS

Irrigation management is being stressed to a greater degree than previously. The engineering aspects of an irrigation lot may be adequate, but unless the farmer is familiar with irrigation scheduling, seed varieties, fertilizer and water management, his lot can be relatively unproductive. This is a matter which is primarily under the control of the lot holders, many of whom are becoming very cost conscious and concerned with maximizing returns on their investments. As each farmer considers these factors, and adheres to the recommendations, there is a consistent increase in production on the irrigation projects.

Co-operative extension programs are being carried out with the federal Experimental Farm at Swift Current and the provincial Agricultural Representative Service in southwest Saskatchewan. This will be expanded in the future as qualified technical

Baling and hauling irrigated hay crop at Rush Lake.



people meet and discuss these problems and solutions with farmers. The result should be increased efficiency on the irrigation projects.

Stabilization of the livestock industry has been of benefit to towns and small centres located near the irrigation projects. These urban centres invariably record economic stability in direct relation to that of the livestock industry. Several rural municipalities in the irrigated areas have reported that, although market conditions for grain farmers may be serious from time to time, they find that tax arrears in the southwest are not significantly higher during these critical periods. This is not the case for some rural municipalities in predominantly grain producing areas. They attribute this mainly to the irrigation projects and the stabilizing influence which they have on their areas.

PROJECT	IRRIGABLE AC. DEVELOPED	SETTLERS
Val Marie	4,700	75
Eastend	3,100	61
Maple Creek	5,000	99
Consul	3,000	50
West Val Marie	3,100	56
Rush Lake (Swift Current)	<u>6,700</u>	<u>216</u>
Totals	25,600	557

RESERVOIR	AC. FT. CAPACITY	PURPOSE
Val Marie	11,400	Irrigate 4,700 acres on PFRA's Val Marie Project
West Val Marie	3,400	Irrigate 3,100 acres on PFRA's West Val Marie Project
Eastend	2,000	Irrigate 3,100 acres on PFRA's Eastend Project
Cypress Lake	100,000	Irrigate 3,000 acres on PFRA's Consul Project, 2,500 acres on provincial projects, and supplement urban water supply for communities of Eastend and Val Marie
Altawan	5,800	Irrigate 100 acres of PFRA pasture, and 1,300 acres of provincial forage
Middle Creek	13,200	Supply private and provincial projects, and supplement Lodge Creek for international division
Adams Lake	670	Supply channel stock watering and private irrigation
Downie Lake	10,000	Four reservoirs supply water to irrigate 5,000 acres on PFRA's Maple Creek Project, and 500 acres of privately owned land
Harris	5,000	
Junction	8,400	
McDougald	750	
Duncairn	84,000	Irrigate 6,700 acres on PFRA's Rush Lake Project and 3,500 acres on provincial projects at Waldeck and Herbert, and for urban use in Swift Current as well as other uses
Highfield	12,600	
Herbert	2,374	
Admiral	980	
Cadillac	1,780	Irrigate 600 acres on provincial project
Gouverneur	6,300	Irrigate 2,000 acres on provincial project
Russell Creek	1,520	Irrigate 1,000 acres on provincial project
Braddock	1,600	Irrigate private and provincial lands
Thomson Lake	30,000	Irrigate private land, supply stock water in the Wood River watershed, and recreation
Lac Pelletier	4,100	Supply Swift Current watershed
Nashlyn	500	Supplement Cypress Lake for irrigation
Simms Lake	4,000	Irrigate 350 acres of provincial lease land at Bedford (Alberta) Project
Bedford	220	Irrigate backflood scheme
Lonesome Lake	800	
Cabri	350	Urban water supply for Town of Cabri
Summercove	1,486	Stock water



Cypress Lake Reservoir, principal storage in southwest Saskatchewan irrigation complex.

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